

IN THE CLAIMS:

The following listing of claims will replace all prior versions, and listings, of the claims in the application:

1. (Currently amended) A method of conducting bi-directional communication with a model vehicle utilizing a bi-directional communication protocol derived from an existing uni-directional communication protocol, the method comprising:

transmitting a command inquiry signal to the model vehicle from a control unit during a first communication period;

automatically pausing transmission by the control unit during the entirety of a second communication period immediately following the first communication period;

~~causing the model vehicle to transmit a response signal during the second communication period; and~~

automatically resuming transmission by the control unit at the conclusion of the second communication period;

wherein the model vehicle is configured to transmit a response signal to the command inquiry signal during the second communication period, and a legacy model vehicle, which is configured to interpret only the existing uni-directional communication protocol, is configured to interpret the command inquiry signal as a communication error.

2-3. (Cancelled)

4. (Currently amended) The method of ~~Claim 2~~ Claim 1, wherein where the control unit automatically transmits a no operation signal for two consecutive communication periods following the second communication period if the base station fails to receive the response signal.

5. (Currently amended) The method of ~~Claim 2~~ Claim 1, wherein the bi-directional communication protocol is ~~adapted~~ derived by varying a state of an error detection code of the uni-directional communication protocol.

6. (Currently amended) The method of Claim 5₁ wherein the error detection code comprises ~~a four bits~~ four bits of a twenty-three bit signal packet.

7. (Currently amended) ~~The method of Claim 2~~ A method of conducting bi-directional communication with a model vehicle, the method comprising:

transmitting a command inquiry signal to the model vehicle from a control unit during a first communication period;

automatically pausing transmission by the control unit during the entirety of a second communication period immediately following the first communication period;

causing the model vehicle to transmit a response signal during the second communication period; and

automatically resuming transmission by the control unit at the conclusion of the second communication period;

wherein the command inquiry signal and the response signal are transmitted utilizing a bi-directional communication protocol adapted from an existing uni-directional communication protocol and the bi-directional communication protocol is adapted by varying a state of a space-filling code of the uni-directional communication protocol.

8. (Currently amended) The method of Claim 7₁ wherein the space filling code comprises at least one of three trailing bits of a twenty-three bit signal packet.

9. (Currently amended) The method of Claim 1₁ wherein the command inquiry signal includes address information specific to particular model vehicle, and the response signal also includes the address information.

10. (Currently amended) The method of Claim 1, wherein the response signal includes information relating to at least one of the location, speed, direction of movement, identity, and health of the model vehicle.

11. (Currently amended) The method of Claim 1, further comprising receiving the command inquiry signal on an antenna of a model train locomotive.

12. (Currently amended) A system for interrogating a model vehicle and a legacy model vehicle, the system comprising:

a control unit including,

a first receiver; and

a first transmitter in electrical communication with a model vehicle, the first transmitter configured to transmit a command inquiry signal during a first communication period, and configured to automatically pause transmission for an entirety of a second communication period immediately following the first communication period; and

a model vehicle including,

an antenna in electrical communication with the control unit and configured to receive the command inquiry signal therefrom;

a second receiver ~~is~~ configured to receive the command inquiry signal from the antenna; and

a second transmitter configured to transmit a response signal to the antenna during the second communication period in reply to the command inquiry signal, wherein the control unit is configured to recognize the response signal; and

a legacy model vehicle including,

a second antenna in electrical communication with the control unit and configured to receive the command inquiry signal therefrom; and

a third receiver configured to receive the command inquiry signal from the second antenna;

wherein the legacy model vehicle is configured to interpret the command inquiry signal as a communication error, and not as a signal that requires a response.

13. (Original) The system of Claim 12 wherein:

the control unit further comprises a first element configured in a first state to place the first transmitter in electrical communication with the track to transmit the command inquiry signal, and configured in a second state to place the first receiver in electrical communication with the track to receive the response signal; and

the model vehicle further comprises a second element configured in a first state to place the second receiver in electrical communication with the antenna to receive the command inquiry signal, and configured in a second state to place the second transmitter in electrical communication with the antenna to transmit the response signal.

14. (Currently amended) The system of Claim 13, wherein the at least one of the first and second elements comprises an active switch controlled by a processor.

15. (Currently amended) The system of Claim 12, wherein the first receiver and the first transmitter are in wired communication with a model railroad track, and the antenna is positioned on a model railroad locomotive.

16. (Currently amended) ~~The system of Claim 12 further comprising~~ A system for interrogating a model vehicle, the system comprising:

a control unit including,

a first receiver;

a first transmitter in electrical communication with a model vehicle, the first transmitter configured to transmit a command inquiry signal during a first communication period, and configured to automatically pause transmission for an entirety of a second communication period immediately following the first communication period; and

a model vehicle including,

an antenna in electrical communication with the control unit and configured to receive the command inquiry signal therefrom;

a second receiver in configured to receive the command inquiry signal from the antenna;

a second transmitter configured to transmit a response signal to the antenna during the second communication period in reply to the command inquiry signal, wherein the control unit is configured to recognize the response signal; and

a stationary track element including,

a second antenna in wireless communication with the track;

a third receiver in configured to receive the command inquiry signal from the second antenna; and

a third transmitter configured to transmit a third signal to the second antenna in response to the command inquiry signal, wherein at least one of the base unit and the model vehicle are configured to receive and recognize the third signal as returned by the stationary track element.

17. (Currently amended) The system of Claim 12, wherein the model vehicle comprises a remote-control vehicle, the first receiver and the first transmitter are in wireless communication with the model vehicle, and the antenna is positioned within the model vehicle.

18. (Currently amended) A bidirectional communications protocol for communication with a model vehicle and a legacy model vehicle, the communications protocol comprising:

a first command set belonging to a legacy uni-directional communication protocol; and

a second command set extended from the first command set and comprising a command inquiry signal for transmission by a control element in communication with at least one of the model vehicle and the legacy model vehicle, and a response signal for transmission by the model vehicle in reply to the command inquiry signal;

wherein the legacy model vehicle, which is configured to interpret the legacy uni-directional communication protocol, is configured to interpret the command inquiry signal as a communication error.

19. (Currently amended) The communication protocol of Claim 18, wherein the command inquiry signal and the response signal comprise a twenty-three bit signal packet.

20. (Currently amended) The communication protocol of Claim 19, wherein second command set includes error detection information recognizable to indicate the second command set. [[.]]

21. (Currently amended) The communication protocol of Claim 19, wherein the second command set includes space-filling information recognizable to indicate the second command set.